September 11, 2000

BOX PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Re: Application of **Bernhard KAISER**

**A PROCESS FOR SIGNALLING COST INFORMATION UPON CONNECTION
ESTABLISHMENT AND A TARIFF SERVER THEREFOR**
Our Ref. Q60663

Dear Sir:

Attached hereto is the application identified above including 7 sheets of the specification, claims and abstract, 1 sheet of informal drawing, executed Assignment and PTO 1595 form, and executed Declaration and Power of Attorney. Also enclosed is the Information Disclosure Statement.

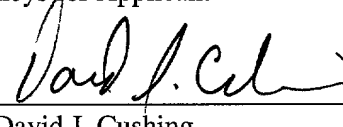Please see attached preliminary amendment before calculating Government filing fee.

The Government filing fee is calculated as follows:

Total claims	6	-	20	=	0 x	$18.00 =	$.00
Independent claims	2	-	3	=	0 x	$78.00 =	$.00
Base Fee							$690.00

TOTAL FILING FEE	**$690.00**
Recordation of Assignment	$40.00
TOTAL FEE	**$730.00**

Checks for the statutory filing fee of $690.00 and Assignment recordation fee of $40.00 are attached. You are also directed and authorized to charge or credit any difference or overpayment to Deposit Account No. 19-4880. The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 and any petitions for extension of time under 37 C.F.R. § 1.136 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.

Priority is claimed from October 2, 1999 based on German Application No. 19947535.0. The priority document is enclosed herewith.

Respectfully submitted,
SUGHRUE, MION, ZINN,
            MACPEAK & SEAS, PLLC
Attorneys for Applicant

By: _____
David J. Cushing
Registration No. 28,703

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Bernhard KAISER	Attorney Docket Q60663
Appln. No.: Not yet assigned	Group Art Unit: Not yet assigned
Filed: September 11, 2000	Examiner: Not yet assigned

For: A PROCESS FOR SIGNALLING COST INFORMATION UPON CONNECTION
     ESTABLISHMENT AND A TARIFF SERVER THEREFOR

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Page 1, after the title, insert the heading --**Background of the Invention**--.

Page 2, line 34, insert the heading --**Summary of the Invention**--.

Page 3, lines 4-11 delete in their entirety and insert:

--This object is achieved in accordance with the invention by a process for signaling cost information upon a connection in a telecommunications network information in a telecommunications network, the process comprising the steps of: the subscriber's data terminal establishing a connection to an exchange; a call handling function of the exchange making a tariff request to a tariff server; the tariff server sending a tariff response for the requested connection to the call handling function of the exchange; the call handling function forwarding the tariff response to a CDR generating function in the exchange; the CDR generating function forwarding cost information to the cost communication function of the exchange; and the cost

communication function communicating the cost information to the subscriber's data terminal.

The object of the invention is further achieved by a tariff server with connections to the exchange, to a bill server, to a service operator, and to a data terminal of subscribers, and wherein the tariff server has a charging rate function which is connected to a subscriber database.

The process according to the invention and tariff server according to the invention have the particular advantage that the cost information is made available to the subscriber directly before and during a connection.--

line 12, insert the heading --**Brief Description of the Drawings**--.

line 16, insert the heading --**Detailed Description of the Invention**--.
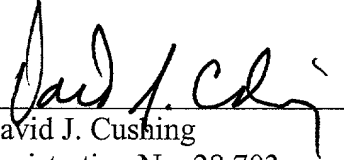
IN THE ABSTRACT:

After the heading, delete the title in its entirety.

After the abstract, delete "(Figure)".

REMARKS

Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,

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Date: September 11, 2000

A Process for Signalling Cost Information upon Connection Establishment and a Tariff Server Therefor

The invention is based on a process for signalling cost information upon connection establishment in a telecommunications network and to a tariff server therefor according to the preambles of the independent claims.

5

So-called call handling in the exchange is known. The call handling process is very limited as it does not take the individual subscribers into account but merely determines the tariff rate globally according to criteria relating to
10   time, date, distance and service used. However, this process permits the display of the costs on a charge meter during the telephone connection.

Superimposed on the conventional communications network for
15   circuit-switched connections is a so-called intelligent network (IN) with the aid of which, over and beyond the pure connection establishment, a number of other services can be provided. To use a specific service of this intelligent network, it is firstly necessary to dial a
20   service code. The service code is necessary to reach a so-called service switching point (SSP) which switches the required service on the basis of the service code as so-called service switching function (SSF). For this purpose, the SSP evaluates the transmitted service code and, via a
25   so-called service transfer point (STP), then approaches a service control computer, the so-called service control point (SCP) which then controls the provision of the requested service. The SSP is the interface between the conventional communications network and the intelligent
30   network. STP and SCP are components of the intelligent network. A general description of an intelligent network

is to be found in the book "Intelligente Netze"
(Intelligent Networks) by G. Siegmund, 1999, p. 31 ff.

A signalling network, which at the present time normally
5 operates using Signalling System No. 7 of ITU-T, is also
linked to or superimposed upon the conventional
communication network. This signalling system and the
associated signalling network are generally known under the
abbreviation #7. This signalling system is also used in
10 the intelligent network. The above mentioned service
transfer point (STP) of the intelligent network here is
identical to the identically abbreviated signalling
transfer point (STP) of the signalling network #7. An
advantage of the possible services in an intelligent
15 network is the provision of individual bills relating to
the costs of the connections. At the end of an IN
connection, a call record containing all the important data
for this call is created by the SSP and STP. These records
are sent to the service management point (SMP), which, in
20 addition to the statistics function, determines the charge
information therefrom. In the SMP the reported results of
the call or service can be linked with the charge metering
by the service provider in order to produce a billing
ticket therefrom.
25

The structure of the specific charge metering for different
telephone services constitutes a key point for the network
operators. The cost structures for connections are a
fundamental means of distinguishing and differentiating
30 between the various service providers. The currently
existing methods of determining and displaying costs are
unsatisfactory. They cannot provide the relevant customer
with information until after a connection has ended.

35 Therefore the object of the present invention is to propose
a process which enables the subscriber in a

telecommunications network to be sent information about
costs before and during a connection.

This object is achieved in accordance with the invention by
5   a process for signalling cost information upon a connection
in a telecommunications network according to the theory of
Claim 1 and by a tariff server according to Claim 5. The
process according to the invention and tariff server
according to the invention have the particular advantage
10   that the cost information is made available to the
subscriber directly before and during a connection.

Further advantageous developments of the invention are
disclosed in detail in the sub-claims and in the
15   description.

The sole Figure illustrates the construction of a network
according to the invention. Figure 1 shows a data terminal
1 from which connections are made to an exchange 2. The
20   exchange 2 contains functions of the SSP and of the SCP.
The exchange 2 has a call handling function 6 and a CDR
(call detail records)- generating function 7 as well as a
cost communication function 8. The exchange 2 is connected
to a service management point (SMP) 3. A tariff server 4
25   and a bill server 5 are arranged in the service management
point 3. The service management point (SMP) is also
connected to external access units 9.

Upon a connection establishment between the data terminal 1
30   of the subscriber and the exchange 2, the call handling
function 6 receives the requested connection data. The
call handling function makes an enquiry to the tariff
server 4 about the tariff for the desired connection in a
tariff enquiry 10. In the tariff server the charging rate
35   determination function 13 requests the desired tariff
information in a database 14. Information about the

subscriber and the subscriber's specific tariff conditions
are stored in this database. Via the charging rate
determination function 13 of the tariff server 4 the tariff
server answers the enquiry from the call handling function
5 6 with a tariff response 11. The call handling function 6
forwards the tariff response 11 to the CDR generator 7 and
the cost communication function 8 of the exchange 2. This
cost communication function 8 sends the information
directly to the subscriber's data terminal 1 via a
10 signalling channel 15. In this way the tariff for the
desired connection is communicated to the subscriber
actually prior to the connection establishment. The
information is also updated during an existing connection.
   The CDR generator 7 determines the units already consumed
15 in the current connection. The CDR generator 7 is also
connected to a bill server 5. In this bill server 5 the
CDR units are collected, processed on the basis of the
current tariff, and possibly intermediately stored. The
information relating to the accrued units is forwarded to
20 the tariff server 4 via a so-called hot billing channel 12.
   This information ensures that the current costs are
available to the subscriber in the database. The current
costs are then forwarded to the exchanges and to the
subscriber by means of the tariff enquiry and tariff
25 response.

The tariff server 4 also has various access facilities 9.
Via a service centre 9 the service provider can access the
tariff server 4 and adapt the current subscribers and their
30 current tariffs. An access facility for a personal enquiry
about current personal tariffs is also available to the
subscriber in the telecommunications network. This current
enquiry can be made using the data terminal or via the
internet using a PC.

Claims

1.   A process for signalling cost information in a
telecommunications network comprising the steps:

-      the subscriber's data terminal (1) establishes a
5   connection to an exchange (2),

-      the exchange has a call handling function (6)
which makes a tariff request (10) to a tariff server (4),

10   -   the tariff server sends a tariff response (11)
for the requested connection to the call handling function
(6) of the exchange (2),

-      the call handling function (6) forwards the
15   tariff response (11) to a CDR generating function (7) in
the exchange,

-      the CDR generating function (7) forwards cost
information to the cost communication function (8) of the
20   exchange (2),

-      the cost communication function (8) communicates
the cost information to the subscriber's data terminal.

25   2.   A process for signalling cost information according to
Claim 1, characterised in that the tariff server has
access to a subscriber database containing current tariff
data.

30   3.   A process for signalling cost information according to
Claim 1, characterised in that the current costs are
updated upon the connection establishment and/or during

the existing connection.

4.   A process for signalling cost information according to Claim 1, characterised in that the information of the tariff server (4) is updated with the aid of a bill server (5).

5.   A tariff server (4) with connections to the exchange (2)

-    to a bill server (5)

-    to a service operator (9)

-    to a data terminal (9) of subscribers

-    wherein the tariff server (4) has a charging rate function (13) which is connected to a subscriber database (14).

6.   A tariff server (6) according to Claim 5, characterised in that the subscriber database (14) is adapted to the current cost situation by current data of the bill server (6).

Abstract

**A Process for Signalling Cost Information upon
Connection Establishment and a Tariff Server Therefor**

The invention is a process for signalling cost information
in a telecommunications network comprising the steps: the
subscriber's data terminal (1) establishes a connection to
an exchange (2), the exchange has a call handling function

5   (6) which makes a tariff enquiry (10) to a tariff server
(4), the tariff server sends a tariff response (11) for the
requested connection to the call handling function (6) of
the exchange (2), the call handling function (6) forwards
the tariff response (11) to a CDR generating function (7)

10   in the exchange, the CDR generating function (7) forwards
cost information to the cost communication function (8) of
the exchange (2), the cost communication function (8)
communicates the cost information to the subscriber's data
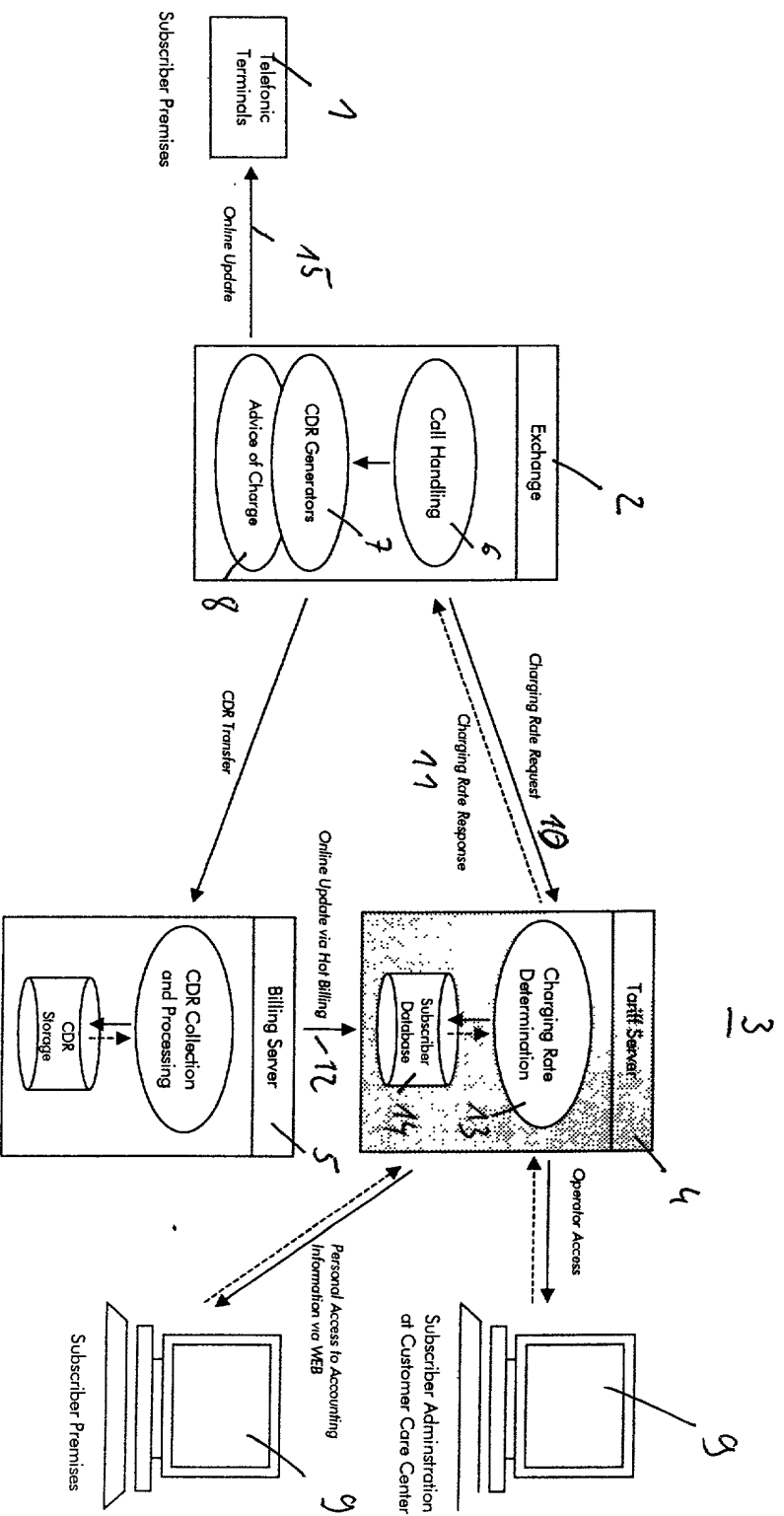terminal.

(Figure)

Figure: System Configuration with Tariff Server

Subscriber Premises

Telefonic Terminals — 1

Online Update — 15

Exchange — 2

Call Handling — 6
CDR Generators — 7
Advice of Charge — 8

Charging Rate Request — 10
Charging Rate Response — 11

CDR Transfer

Tariff Server — 3 / 4

Charging Rate Determination — 13
Subscriber Database — 14

Operator Access

Online Update via Hot Billing — 12

Billing Server — 5
CDR Collection and Processing
CDR Storage

Personal Access to Accounting Information via WEB

Subscriber Premises — 9

Subscriber Administration at Customer Care Center — 9

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name: that I verily believe I am an original, first and joint inventor, together with the other inventors listed below, of the subject matter claimed and for which a patent is sought in the application entitled: A Process for Signalling Cost Information upon Connection Establishment and a Tariff Server Therefor

which application is:

☐   the attached application   ☐   Application Serial No:

(for original application)   filed   , and amended on

(for declaration not accompanying application)

that I have reviewed and understand the contents of the specification of the above-identified application, including the claims, as amended by any amendment referred to above; that I acknowledge my duty to disclose information of which I am aware which is material to the patentability of this application under 37 C.F.R. 1.56, that I hereby claim priority benefits under Title 35, United States Code §119, §172 or §365 of any provisional application or foreign application(s) for patent or inventor's certificate listed below and have also identified on said list any foreign application for patent or inventor's certificate on this invention having a filing date before that of any foreign application on which priority is claimed:

Application Number	Country	Filing Date	Priority Claimed
199 47 535.0	Germany	October 02, 1999	yes

I hereby claim the benefit of Title 35, United States Code §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in a listed prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge my duty to disclose any information material to the patentability of this application under 37 C.F.R. 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status

I hereby appoint John H. Mion, Reg. No. 18,879; Thomas J. Macpeak, Reg. No. 19,292; Robert J. Seas, Jr., Reg. No. 21,092; Darryl Mexic, Reg. No. 23,063; Robert V. Sloan, Reg. No. 22,775; Peter D. Olexy, Reg. No. 24,513; J. Frank Osha, Reg. No. 24,625; Waddell A. Biggart, Reg. No. 24,861; Louis Gubinsky, Reg. No. 24,835; Neil B. Siegel, Reg. No. 25,200; David J. Cushing, Reg. No. 28,703; John R. Inge, Reg. No. 26,916; Joseph J. Ruch, Jr., Reg. No. 26,577; Sheldon I. Landsman, Reg. No. 25,430; Richard C. Turner, Reg. No. 29,710; Howard L. Bernstein, Reg. No. 25,665; Alan J. Kasper, Reg. No. 25,426; Kenneth J. Burchfiel, Reg. No. 31,333; Gordon Kit, Reg. No. 30,764; Susan J. Mack, Reg. No. 30,951; Frank L. Bernstein, Reg. No. 31,484; Mark Boland, Reg. No. 32,197; William H. Mandir, Reg. No. 32,156; Scott M. Daniels, Reg. No. 32,562; Brian W. Hannon, Reg. No. 32,778; Abraham J. Rosner, Reg. No. 33,276; Bruce E. Kramer, Reg. No. 33,725; Paul F. Neils, Reg. No. 33,102; Brett S. Sylvester, Reg. No. 32,765; and Robert M. Masters, Reg. No. 35,603, my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and request that all correspondence about the application be addressed to **SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC**, 2100 Pennsylvania Avenue, N.W., Washington, D.C. 20037-3213.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date August 29, 2000   First Inventor   Bernhard   Dr. KAISER

                                              First Name   Middle Initial   Last Name

Residence   Vaihingen / Enz   Germany   Signature

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                            71665 Vaihingen / Enz, Germany

Citizenship   German